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DECISION DOCUMENT

WHITE RIVER SHALE PROJECT
DETAILED DEVELOPMENT PLAN

Phillips Petroleum Company, Sunoco Energy Development Company,
and Sohio Shale Oil Company

Oil Shale Tracts U-a and U-b
Leases U-25918 and U-26194
Uintah County, Utah

Prepared by

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February 8, 1982

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PROTOTYPE OIL SHALE LEASING PROGRAM

Tracts U-a and U-b

(U-25918) (U-26194)

DECISION DOCUMENT

White River Shale Project

Detailed Development Plan

Summarizing and Documenting
the Development Plan Review Process

Completed by

Technical Staff

Minerals Management Service
Oil Shale Office

February 8, 1982

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DECISION DOCUMENT

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DECISION DOCUMENT

White River Shale Project Detailed Development Plan

Oil Shale Lease Tracts U-a and U-b
(U-25918 and U-26194)

Introduction

This document is the result of an orderly and thorough review of the Detailed Development Plan submitted to the U.S.G.S. Deputy Conservation Manager-Oil Shale (DCM/OS) (1/19/82 changed to Minerals Management Service, Deputy Minerals Manager-Oil Shale) by the lessees of Federal oil shale lease tracts U-a and U-b. The evaluation will address the technical adequacy and compliance with lease terms, including environmental protection. This document summarizes the review and evaluation procedures leading to an ultimate decision on the part of the Deputy Minerals Manager-Oil Shale as to the approvability of the Detailed Development Plan. Input has included the opinions and technical advice of the staff of the Oil Shale Office, the Oil Shale Environmental Advisory Panel, other governmental agencies, and the public. The outline of the Decision Document consists of three parts: 1) Prototype Program, 2) Detailed Development Plan Review, and 3) Recommendations.

Part I contains a summary of the Federal Prototype Oil Shale Leasing Program of which oil shale tracts U-a and U-b are a part.

Part II contains an abstract of the Detailed Development Plan (DDP) submitted by the lessees of tracts U-a and U-b and summarizes the issues and comments identified during the review process which are defined in a separate evaluation document. The review process included technical staff review; consultation with the Oil Shale Environmental Advisory Panel; public hearings; and distribution of the DDP to governmental agencies, special interest groups, and the public. Responses to the major issues identified during the review are presented in this part of the Decision Document.

Part III contains the recommendation for the approvability of the DDP including necessary conditions for approval. This recommendation represents an evaluation of the preceding parts of the Decision Document. Conditions of Approval are incorporated in this part if the DDP is acceptable.

I Prototype Program

The Prototype Oil Shale Leasing Program was developed in response to the Presidential energy message of June 4, 1971, in which he requested the Secretary of the Interior to initiate a "leasing program to develop our vast oil shale resources, provided that environmental questions can be satisfactorily resolved." The objectives of the program as developed by the Secretary of the Interior are to: 1) provide a new source of energy, 2) ensure the environmental integrity of the area and develop environmental safeguards, 3) permit an equitable return, and 4) develop management expertise.

Federal oil shale lease tracts U-a and U-b, for which this document is prepared, are a part of this prototype program. Tracts U-a and U-b were selected for leasing by the Department of the Interior on April 25, 1972, from 20 individual tract nominations. A six-volume Final Environmental Impact Statement for the Prototype Oil Shale Leasing Program was prepared by the Department of the Interior, pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969, and filed with CEQ on August 30, 1973. The statement was a study of the environmental impacts of oil shale development and considered the regional impacts of a one million barrel-per-day industry, and the specific impacts from development of individual lease tracts including tracts U-a and U-b. Methods of oil shale development which were evaluated included conventional underground and open-pit mining with surface retorting and in situ processing. Tracts U-a and U-b were subsequently leased with an effective date of June 1974 for bonus bids totalling \$120.7 million.

An oil shale lease was developed for the Prototype Oil Shale Leasing Program and is presented as part of the proposed action in the final environmental statement. The lease supplements the Department's regulations governing surface exploration, mining, and reclamation of lands (43 CFR Part 23) and the operating regulations for mining (30 CFR Part 231). The format of the lease includes the lease proper and 14 environmental stipulations which are attached to and specifically incorporated in the lease. These special stipulations place additional requirements on the lessee to ensure that the environmental impact of development will be minimized.

The Oil Shale Office (OSO) was established in June 1974 within the Central Region of the Conservation Division, U. S. Geological Survey (USGS), to administer the program. The Oil Shale Office, together with the entire USGS Conservation Division, has now been redesignated as the U.S. Minerals Management Service within the Department of Interior. The OSO was greatly assisted by the Oil Shale Environmental Advisory Panel (OSEAP) which was created to advise Department officials on environmental aspects of the prototype program. This Decision Document was prepared by the OSO in response to its management responsibilities. OSEAP, other governmental agencies, and the public have reviewed the subject DDP and provided comments for consideration in the Decision Document.

II Detailed Development Plan Review

A. Detailed Development Plan

Tracts U-a and U-b, federal leases U-25918 and U-26194, respectively, were acquired effective June 1, 1974, by Phillips Petroleum Company, Sunoco Energy Development Company, and Sohio Shale Oil Company for bonus bids totalling \$120.7 million. Exploration and environmental baseline data were collected from 1974 through January 1977. A detailed description of the environment of tracts U-a and U-b area prior to oil shale development is contained in the "Final Environmental Baseline Report for Tracts U-a and U-b" dated October 1977.

The lessees first submitted a Detailed Development Plan (DDP) in June 1976. The DDP presented plans to develop tracts U-a and U-b by room-and-pillar mining with surface retorting of oil shale. Due to a conflict with the Clean Air Act, a one-year suspension of operations was granted by the U. S. Geological Survey, effective November 1, 1976. While the suspension was still in effect, the Federal District Court issued a preliminary injunction effected May 31, 1977, over Utah's in-lieu-land selection claim that encompassed the area of tracts U-a and U-b. The Department of Interior and, more specifically the Oil Shale Office, was enjoined from enforcing the terms of the lease. The 1976 White River Shale Project DDP underwent review by the Oil Shale Environmental Advisory Panel, the Oil Shale Office staff, and public hearings in both Vernal and Salt Lake City, Utah. The OSO staff review was complete and final action on the DDP was about to be made. With the issuance of the court ordered preliminary injunction, no further action to formally approve the DDP was taken by the USGS.

In November 1980, lessees of tracts U-a and U-b submitted a final draft DDP that was essentially an update of the 1976 DDP. The new DDP included a more detailed description of the environment while retaining the room-and-pillar mining with surface retorting development scenario. Prior to finalizing the DDP, the lessees decided in April of 1981 to change the retorting technologies considered in the November 1980 final draft. This constituted a major rewrite of the Detailed Development Plan.

On September 1, 1981, the lessees of tracts U-a and U-b submitted a final DDP for a three-phase program to produce 106,230 barrels-per-stream-day (BPSD) of shale oil. The plan described the development of the tracts by room-and-pillar mining with surface retorting by three different surface retorting systems and a raw shale oil upgrading facility. The first production is scheduled for six years after start of construction. The first phase requires mining of 27,300 standard-ton-per-day (st/d) of oil shale to produce 14,840 BPSD of shale oil. Phase II will commence 10 years following the start of Phase I construction and will require the mining of 93,460 st/d to produce 57,190 BPSD of shale oil. Phase III will be operational in year 13 and will produce 106,230 BPSD of shale oil from 176,000 st/d of mined oil shale.

During Phase I, a Union Oil indirect heat retort will be used to process 11,600 st/d and one Superior Oil direct heat retort to process 13,000

st/d. Phase II will require four Union and three Superior retorts. The third phase will use four Union, five Superior, and two Tosco II retorts. The Tosco II retorts will process fines produced in crushing and screening of the raw shale which cannot be handled in the Union and Superior retorts. This plan is considered a resubmittal as described under Section 10(a) of the Federal Prototype Oil Shale Lease.

B. Review Process

The review of a Detailed Development Plan involves a process of submissions, evaluation, meetings, and public hearings which lead to the final decision on approvability of the plan by the Deputy Minerals Manager-Oil Shale. This process was determined by the District Court and Circuit Court of Appeals to exceed the letter and spirit of NEPA. The procedure includes distribution of the DDP to concerned governmental agencies, special interest groups, and the public; consultation with the Oil Shale Environmental Advisory Panel; public hearings; and technical staff review. The findings, needs, and resolution of issues identified by this process are contained in this Decision Document.

The technical staff review of the plan by the Oil Shale Office and comments from other groups are recorded in an Evaluation Document (ED) which is an internal working document that provides the basis for this formal Decision Document. The process for completing the ED assures that the technical staff completes an orderly and thorough review of the DDP. The ED contains the opinions and advice of the Oil Shale Environmental Advisory Panel, other governmental agencies, special interest groups, and the public. The ED consists of several loose-leaf binders organized by subject areas which include the review and analysis of issues.

More than 175 copies of the DDP submitted by the lessee to the Oil Shale Office were distributed for review during the first week of September 1981. Public hearings were held in Vernal, Utah, and Salt Lake City, Utah, on October 21 and 28, 1981, respectively. An Oil Shale Environmental Advisory Panel meeting was held in Salt Lake City, Utah, on October 28-29, 1981, to discuss the DDP and provide advice to the Deputy Minerals Manager-Oil Shale. Final OSEAP advice was submitted to the Deputy Minerals Manager-Oil Shale by letter dated November 12, 1981. The public comment period was open until November 2, 1981, to allow for any written comments. The technical staff of the Oil Shale Office completed its review of the DDP by preparing the ED. This Decision Document was completed February 8, 1982.

C. Plan Review

The following discussion summarizes the basic plan contained in the DDP, presents the major environmental and technical issues identified during the review process, and describes how these issues have or will be resolved. The DDP submitted by the lessees of tracts U-a and U-b should be consulted for specific details. Figures and tables referenced in the following discussion refer to those in the DDP.

1. Section 1, Introduction to Project

a. Basic Plan

The proposed plan for the White River Shale Project (WRSP) describes the intent of the lessees to develop federal oil shale lease tracts U-a and U-b located in northeastern Utah to produce commercial quantities of shale oil. The project, which will start in 1982, is planned for phased development over 12 years, at which time full commercial production will be achieved. Commercial operation will continue until Year 2007 when the on-tract resources are expected to be exhausted.

The plan describes a three-phase development scenario. Phase I will consist of a room-and-pillar mine, surface retorting in one Union B and one Superior retort, onsite upgrading of the shale oil, and transportation of approximately 14,840 barrels-per-stream-day (BPSD) of synthetic crude oil off site by pipeline. Phases II and III will follow with production rates of 57,190 BPSD and 106,300 BPSD.

Workforce for the White River Shale Project is expected to peak out in 1991 with a combined construction and operation total of 5,094. Table 3.20-1 presents manpower estimates through 1994.

b. Issues

During the review process, no major issues were identified with respect to the overall proposed plan. There were some specific concerns identified. These specific issues are identified in the specific review sections which follow in this Decision Document. The major issues which are discussed in the following sections will be those which required submittal of supplemental material from the lessee, are of major public concern, or require some condition of approval to ensure compliance with the lease and protection of the environment. The following are specific issues identified in Section 1.

(i) The estimated capital and operating costs in Table 1.7-1 of the DDP lacks detail and should be modified to include costs related to specific operations.

(ii) More detail is needed on the White River Shale Project schedule given in figure 1.5-2 of the DDP. There is also a conflict in the time schedules.

(iii) The DDP discusses 63% recovery but a mining support study indicates that 73% recovery is possible.

(iv) The discussion of existing gas wells on and near the tracts is incomplete. Information is needed as to the exact number and their completion status.

c. Resolution of Issues

(i) The lessees submitted a more detailed estimate of capital and operating cost for each phase of the project in their November 10, 1981, submittal of supplemental material. This information will be handled as confidential.

(ii) The lessees committed to submission of additional information per item 7 of their December 21, 1981, supplemental material. Master Schedule (SCH-00-PR-1-1 and SCH-00PR-1-2) for WRSP Phase I was submitted on December 31, 1981.

(iii) The answer to question 31 of the December 21, 1981, supplemental material resolves this issue. The 73% recovery rate refers to resource recovery in the panel areas whereas 63% recovery is for the total lease area including the haulageways, plant pillar, and lease boundary pillar areas. However, this number is subject to some modification as the final underground design proceeds.

(iv) More detailed information on the status of oil and gas well leases on tracts U-a and U-b was submitted in the November 10, 1981, supplemental material. The lessees further clarified the issue in their answer to question 12 of their December 21, 1981, supplemental material.

d. Recommendation

It is recommended that Section 1 of the DDP be approved with the submitted supplemental material to be considered as part of the DDP.

2. Section 2, Description of Project Area

a. Basic Plan

This section describes the setting on and around tracts U-a and U-b and is based on the extensive two-year environmental baseline studies and ongoing field studies. This section highlights the findings and for more detail one should see the Final Environmental Baseline Report and subsequent annual reports. The general areas covered are geology and soils, water resources, air resources, biological resources, historic-prehistoric and paleontological resources, and aesthetics.

b. Issues

(i) There is a need to study the geotechnical and ground water implication of White River Dam and reservoir on mine inflow rates and structural integrity of pillars along the north tract boundaries.

c. Resolution of Issues

(i) Should the dam be built, the monitoring program will be modified to include monitoring to answer such questions.

d. Recommendation

It is recommended that Section 2 of the DDP be approved.

3. Section 3, Description of Proposed Action

a. Basic Plan

The lessees propose to develop tracts U-a and U-b in three phases involving underground mining and aboveground retorting. The maximum shale oil production of 106,230 BPSD would occur during Phase III in 1993. The depletion of the on-tract oil shale reserves is estimated to occur about Year 2007.

Section 3 describes in detail the layout of facilities, mining facilities, feed preparation and material handling, retorting and gas and oil processing, soils handling, processed shale and fines deposition, solid waste, utilities, ancilliary facilities, water supply, product and by-product handling, construction plan, manpower, permits and approvals, and decommissioning/abandonment plan and schedule.

b. Issues

(i) The schedule given in Figure 3.3-1 of the DDP is the same as Figure 1.5-2 in Section 1 and is considered to be lacking in detail.

(ii) There is a concern that not all topsoil-like material will be saved for revegetation purposes. There needs to be a commitment from the lessee that all plant growth medium or topsoil-like material and nontoxic sludge will be used for revegetation purposes.

(iii) Consideration should be given to disposal of fines from the dust collectors on the surface rather than underground to eliminate the possibility of spontaneous combustion in the mine.

(iv) The Phase I processed shale plan is not sufficiently detailed to evaluate the experimental design. The plan needs to explain how the lessees will demonstrate acceptable vegetation technology. The plan should detail the research to be conducted on Phase I processed shale pile.

(v) There is a concern that proper measures will not be taken to protect raw shale piles from leaching and spontaneous combustion.

(vi) There is concern about the stability of the processed shale pile if degradable waste material is disposed of in the processed shale pile.

(vii) The permit schedule is not correct and needs to be updated.

(viii) Several comments were made regarding the detailed design of the operations in Phase I. There was also a concern as to the actual plans for Phases II and III.

c. Resolution of Issues

(i) See Resolution of Issues (ii) in Section 1.

(ii) The lessees agree to recover, stockpile, and reuse all suitable topsoil-like material in the processed shale reclamation program during Phase I as explained in the answer to question 15 of the December 21, 1981, supplemental material. Furthermore, the lessees are required to separate and stockpile overburden material and must avoid wasting the mineral deposits and other resources found in, upon, or under the tracts per Environmental Lease Stipulation Section 11(k) and Federal Oil Shale Lease Section 12(a)(3).

(iii) The lessees' present design will permit fines from the underground dust collectors in the crushing station area to be redeposited on the conveyor belts and hoisted to the surface. The design will include proper consideration of the particulate emission potential of surface disposal.

(iv) In response to question 9 in the December 21, 1981, supplemental material, the lessees committed to a detailed design of the Phase I processed shale disposal area at least nine months prior to initial development of the area. They will establish a processed shale disposal research plot near the Phase I disposal area to fully evaluate the environmental effects of their disposal and reclamation plan. The plan will include a method for alternative revegetation should the first-chosen method not be successful.

This plan will detail both the proposed methods for disposal and revegetation of processed shale and research to determine or verify the best method(s). The field research will verify reclamation techniques planned for use on a commercial scale. This plan will address or evaluate:

(1) The physical and chemical characteristics of the three different types of processed shale and the best method of segregating and/or mixing them for disposal. Items which need to be addressed include compaction requirements, permeability, surface configuration, and surface stability.

(2) Methodology to achieve self-sustaining vegetation types on the processed shale pile.

(3) The experimental design for the reclamation revegetation program.

(v) A waste water retention dam and pond will collect all runoff from the site area and a suitable surface for the base of the pile will direct leachate to the retention pond. The lessees do not anticipate any significant heating or spontaneous combustion problems; however, they will be required to monitor the raw shale stockpile. Information gained from studies on tract C-a raw shale pile will be used in the design of a monitoring program.

(vi) Per the lessees' answer to question 21 of the December 21, 1981, supplemental material, the stability of the processed shale pile will be an important concern in the final design plan for the pile. See also item (iv) of this section.

(vii) A current permit schedule was submitted as part of the October 20, 1981, supplemental material. As the project schedule becomes more well-defined and the off-tract development needs are identified, revisions to the permit schedule will be made and sent to the OSO.

(viii) The lessees will be required by a specific Condition of Approval to submit final design plans to the Deputy Minerals Manager-Oil Shale for review.

d. Recommendation

It is recommended that those parts of Section 3 of this DDP not covered elsewhere in the Decision Document be approved based on the lessees' commitment to submit for OSO approval a detailed design of Phase I processed shale disposal area and a processed shale disposal research plot near the Phase I disposal area and subject to the Conditions of Approval below.

e. Conditions of Approval

(i) Prior to commencing any operations under Phase I of the Detailed Development Plan, the lessees shall submit final design plans as requested by the Deputy Minerals Manager-Oil Shale for his review as to adherence to the DDP, to the terms of the Oil Shale Lease, and to the requirements of 30 CFR Part 231 and 43 CFR Part 23.

(ii) Prior to commencing construction of phases II and III facilities, the lessees shall submit plans as requested by the Deputy Minerals Manager-Oil Shale for his review and approval as to adherence to the plan of action contained in the DDP, to the terms of the Oil Shale Lease, and to the requirements of 30 CFR Part 231 and 43 CFR Part 23.

4. Section 3.5, Mining

a. Basic Plan

An underground room-and-pillar mining method will be used to mine up to 27,330 TPSD in Phase I, up to 93,460 TPSD in Phase II, and up to 176,740 TPSD in Phase III. The detailed mine geology can be found in the Preliminary Rock Mechanics Report referenced on page 3-43 of the DDP and on file at the OSO.

Five years of mining will be required in Phase I to develop a mine large enough to produce 27,330 TPSD. A Production Shaft, Service Shaft, and an Exhaust Shaft will be sunk near the tract U-a and U-b centroid. Each shaft will be 28' in diameter and more than 1000' in depth. The shafts will be concrete lined. If the shafts are found to be gassy, the contractor will use permissible equipment in the shaft bottom.

Approximately 2,000,000 cubic feet per minute of air will be required for ventilation in Phase I. An additional 4,000,000 cubic feet per minute of additional ventilating air will be required for the Phase II mine. During Phase III, additional shafts will be sunk outside the Southam Canyon drainage system to provide an additional 4,000,000 cubic feet per minute of ventilating air to the mine.

Resource recovery will be approximately 72% within production panels and 55% in the development entries, averaging 63% overall. The mining zone in the Green River Formation is 55' with an average grade of 28 gpt.

b. Issues

(i) There was a concern that the ventilation in Figure 3.5-7 of the DDP was reversed. Also, the primary ventilation schematic of Phases II and III should be made available.

(ii) Protective pillars below the inclines should be shown on Figure 3.5-5 of the DDP.

(iii) On page 3-43 of the DDP, the lessees state that if the shaft is found to be gassy, the shaft contractor will use permissible equipment in the shaft bottom. The presence of methane during sinking will be determined by a continuous monitoring and probing program. Data collected to date on tracts U-a and U-b strongly indicate that the mines will be gassy. The lessees plan to sink shafts to depths 200' above the mining zone using schedule 24 equipment, then converting to schedule 31 for continued sinking through the mining zone. Based on the experience gained in sinking the shaft on tract C-b and the core hole data on X-13, it would be most prudent that the shafts be collared and sunk using schedule 31 equipment throughout the operation. To convert all electrical gear and any diesel-powered equipment to schedule 31 during the sinking operation would certainly not be cost effective.

(iv) As mining by room-and-pillar progresses over greater areas of tract U-a, ground movement could occur. The differential loading, the angle of dip, jointing systems, parting planes, structural weakness, horizontal stress, and ground water could all work co-generative to develop ground stress that could lead to major ground movement in the mine.

c. Resolution of Issues

(i) In the lessees' answer to question 10 in the December 21, 1981, supplemental material, a revised copy of Figure 3.5-7 was submitted for ventilation in the panels. In addition the lessees are proceeding with a detailed ventilation study for all three phases of the project. The first portion of the study should be completed in early 1982 and will be reviewed with the OSO at that time.

(ii) In the supplemental material submitted on October 20, 1981, a revised Figure 3.5-5 was provided showing a pillar beneath the toe of the westerly decline. The lessee intends to properly support the decline.

(iii) The lessee will be required to meet with the OSO prior to any shaft sinking to discuss and show just cause why they should start shaft sinking with schedule 24 equipment rather than with schedule 31 equipment.

(iv) The lessee will be required to continue rock mechanics research as the mine grows in area to determine development of horizontal stress. This will include instrumentation and inspection procedures to detect precursors to rock failure.

d. Recommendation

It is recommended that Section 3.5 of the DDP be approved with reference in the approval letter to continue rock mechanic research and the meeting to show why schedule 31 equipment will not be used from the start of the shaft sinking.

5. Section 3.7, Retorting

a. Basic Plan

Section 3.7 of the DDP describes retorting methods and equipment proposed for the three-phased modular development program. The following retort scenarios will be used:

	Union B (IH)*	Superior (DH)†	Tosco II (IH)*
Phase I -Development operations producing 15,930 BPSD of raw shale oil	1	1	
Phase II -Commercial operations producing 60,940 BPSD of raw shale oil	4	2	1
Phase III-Commercial operations producing 113,950 BPSD of raw shale oil	4	5	2

* IH: Indirect-heated (retort heat provided by external source outside retort vessel.

† DH: Direct-heated (retort heat provided by burning residual carbon on processed shale within retort vessel.

The objective of Phase I is to operate and evaluate at commercial scale a vertical-flow, indirect heat Union B retort and a circular grate, direct heat Superior retort.

b. Issues

(i) Because sulfur and nitrogen in oil shale pose potential pollution problems, their content in the feedstock and their fate in the retorting process should be evaluated in detail during Phase I. A more detailed monitoring plan than that presented on page 3-98 of the DDP is needed.

(ii) There is a need for energy and material balance data on each of the retorting processes. The information on the source of raw shale fed into the retorts from which the energy and material balance data were obtained is also needed.

c. Resolution of Issues

(i) In the lessees' supplemental material submitted to the OSO on October 20, 1981, they committed to a submission of a detailed process monitoring plan for review and approval by the OSO prior to surface facility construction.

(ii) The lessees stated in their answer to question 2 in the December 21, 1981, supplemental material that this information was not available at the time of DDP publication. Since then,

preliminary licensing and/or disclosure agreements have been made with both Superior and Union. At present, a series of tests on Hell's Hole Canyon shale are underway at Superior's Denver pilot plant. Nearly 200 tons of the same shale has been shipped to Union's pilot plant at Brea, California. Data from these tests are to be used in licensor's process design for both retorts. This information will be available to the Oil Shale Office on a confidential basis prior to on-site construction.

d. Recommendation

It is recommended that Section 3.7 of the DDP be approved with a reminder in the approval letter of the commitment to send a detailed process monitoring plan for approval and, when available, the energy and material balance data on each of the retorting processes.

6. Section 3.10, Processed Shale Disposal

a. Basic Plan

In Phase I, approximately 20,880 TPSD of processed shale will be produced, 79,380 TPSD in Phase II, and 149,100 TPSD in Phase III. This processed shale will be disposed of in Southam Canyon to the west of the processing area. This area was selected because it is on tract, of sufficient size to hold the anticipated amount of processed shale, and it has a relatively small drainage area.

A small dam will be constructed NW of the Phase I processed shale pile to control runoff from the pile. The dam will include a cutoff trench and foundation treatment to control seepage.

Processed shale will be brought to a haul road by conveyor and then to the disposal area by trucks. The disposal pile will advance with about 5% slope on the advancing edge. At completion the top surface of the pile will be at an elevation of 5,850' with a 4:1 out-slope. The deepest parts of the pile will be as much as 400' with average depths of about 250'. The pile will be contoured as shown in Figure 3.10-3 of the DDP for the revegetation program as it reaches final elevation. Figure 3-10.4 shows the processed shale disposal for Phase II and III.

b. Issues

(i) Several concerns were raised regarding the detailed design of the processed disposal pile and the need to have a research test plot on the Phase I disposal pile.

c. Resolution of Issues

(i) The lessees committed to submittal of a detailed design plan for the processed shale pile and the design of a processed shale disposal research plot (see Section 3, item [iv]).

d. Recommendation

It is recommended that Section 3.10 of the DDP be approved and that the approval letter emphasize the commitment explained in the recommendation of Section 3.

7. Section 3.14, Water Supply Facilities

a. Basic Plan

The water requirements for Phase I are presented in Table 3.14-1. The average consumption is estimated to be 1,682 gpm or 2,700 acre-feet per year (AF/Y). The majority of this consumption will be associated with cooling tower evaporation, shale quenching, and dust control. The water will come from a well collection system in the alluvium and an intake pumping station located on the south bank of the White River. A 4.8 million gallon storage tank will be located at the terminal end of a 1.7 mile 10-inch diameter pipeline from the intake pumping station. An alternate source is the Green River by extending a pipeline to the Moon Lake Power Plant NW of Bonanza.

The ultimate annual average water requirements for Phase III are estimated to be 14,012 gpm or 22,600 AF/Y. The water will be pumped from a pumping station located on the south bank of a reservoir on the White River (planned to be built by the State of Utah during Phase I) through a 24-inch diameter pipeline to an on-tract storage pond. Phase II water will also come from the White River reservoir.

In all phases the potable water, process water, and boiler makeup water will be stored in three separate storage tanks.

b. Issues

(i) Several questions were raised as to the water rights available for the WRSP. This concern was for both the Green River alternate source as well as the White River.

(ii) There is a concern over the availability of a water supply for Phases II and III of the project.

(iii) There is a concern that pumping of water from the White River alluvium wells in Phase I could reduce the flow in the White River and affect the Colorado River squawfish.

c. Resolution of Issues

(i) For all water impoundments that the lessees propose to construct, it will be necessary to file appropriate applications as well as plans and specifications with the Utah Division of Water Rights for their approval before any use of water can be made or before any construction can start. Water

rights must be obtained for the project including the Green River which is an alternate source. The lessees responded to this concern in question 20 of their December 21, 1981, supplemental material. They referenced a letter dated October 17, 1980, from the State of Utah which served as a letter of intent to provide the needed water. The lessees are pursuing various sources of water rights including the Ute Indian Tribe, Cleveland Cliffs Iron Company, and Sohio Shale Oil Company.

(ii) The lessees have continually stated that the White River Reservoir is their preferred choice of water supply for Phases II and III. Should the reservoir not be built, the lessees will finalize one of the alternate water supplies described in Section 7.13 of the DDP. These include the purchase of water from the Green River, Starvation Reservoir, or Red Fleet Reservoir and implementation of the Watson Reservoir Plan, Hells Hole Canyon Reservoir Plan, supply from the Birds' Nest Aquifer, or pumping from the Douglas Creek aquifer.

(iii) The OSO, in response to Section 7(c) of the Endangered Species Act, prepared a biological assessment to determine the affects of the proposed development on any of the species covered by the Act. The biological assessment in general addressed development through commercial product; however, impacts are definite only through Phase I with regard to water supply. The OSO concluded and the Fish & Wildlife Service concurred that oil shale development should not jeopardize the continued existence of any federally-listed threatened or endangered species during Phase I construction.

d. Recommendation

It is recommended that Section 3.14 of the DDP be approved with reference in the approval letter that the lessees will submit a valid water supply plan for Phases II and III if the White River Reservoir is not built.

8. Section 3.15, Wastewater Management Plan

a. Basic Plan

The basic goal of the plan is to obtain water conservation through maximum reuse of treated wastewater. The plan contains wastewater sources, methods of collection, and treatment and reuse schemes. Water balance diagrams for all three phases are given.

The wastewater streams will be segregated and collected in four separate sewer systems according to the type and level of contamination. The wastewater treatment design is based on preventing wastewater discharge to the White River through complete reuse of the treated wastewater. There will be assumed a zero discharge to both surface and ground water.

b. Issues

(i) Because the DDP projected no discharge of wastewater, there was a question as to why the lessees were applying for a NPDES and state discharge permits.

c. Resolution of Issues

(i) The lessees stated in their December 21, 1981, supplemental material (Questions 16 and 17) that they plan no discharge of wastewaters or shaft water to any receiving streams. There is a possibility that circumstances could develop which would lead to an unexpected release. This would occur if the 100-year storm design frequency were exceeded or if successive large rainstorms occurred resulting in a discharge from the water retention ponds, thus the need for an NPDES permit.

d. Recommendation

It is recommended that Section 3.15 of the DDP be approved.

9. Section 3.19.2, Campsite Development

a. Basic Plan

In order to minimize adverse socioeconomic effects in the area due to a large transient addition to the local population, a temporary campsite will be established. It will provide housing, services, and recreation for site workers, and for those indirectly employed who will provide goods and services. Construction camps, consisting of a bachelor camp and a recreational vehicle camp, will be built in the northern portion of tract U-b.

Both camps will have recreational and service facilities, potable water supply, solid waste disposal, sewage treatment plant, power plant, and electric substation. Both camps will be expanded to accommodate the workforce requirements of Phases II and III.

b. Issues

(i) The DDP describes the conceptual plans for the campsite. The detailed plans for the campsite must be reviewed and approved by the OSO prior to groundbreaking.

c. Resolution of Issues

(i) The lessees will be required by specific conditions of approval to submit final design plans to the Deputy Minerals Manager-Oil Shale for review.

d. Recommendation

It is recommended that Section 3.19.2 of the DDP be approved subject to the condition of approval below.

e. Condition of Approval

The lessees shall submit detailed campsite construction plans to the Deputy Minerals Manager-Oil Shale for his review and approval prior to any groundbreaking.

10. Section 3.21, Decommissioning-Abandonment Plan

a. Basic Plan

The plan as presented in the DDP recognizes the requirement in the lease for a final decommissioning and abandonment plan. The plan discusses both decommissioning and abandonment along with manpower, preservation of the mine and aboveground facilities, maintenance of processed shale disposal area, retention dam and reservoirs, and the return of affected land to a state approximating natural conditions.

b. Issues

(i) The plan covered the main areas but lacked any specific details.

c. Resolution of Issues

(i) The lessees will be required by a specific condition of approval to submit for approval a detailed decommissioning and abandonment plan prior to lease relinquishment.

d. Recommendation

It is recommended that Section 3.21 of the DDP be approved subject to the Condition of Approval below.

e. Condition of Approval

The lessees shall submit a detailed decommissioning and abandonment plan to the Deputy Minerals Manager-Oil Shale for his review and approval prior to lease relinquishment.

11. Section 4.2, Air Pollution Control

a. Basic Plan

The project is located in an attainment area for all pollutants. The lessees must and will comply with both emission and ambient air quality standards. Best available control technologies will be used to control fugitive dust, minimize particulate and gaseous emissions, and maintain pollutants at levels below the federal and state standards.

Air pollution emission inventories for all three phases were given along with air pollution control plans for controlling emissions associated with mining operations, roads and construction areas, retort feed preparation, processing, and processed shale disposal.

b. Issues

(i) There needs to be a clarification of pollution control measures as to whether vapor recovery systems or flaring will be used. Section 3.8.6 indicates that a decision will be made but Section 4.2.2 states a number of flare stacks have been provided.

(ii) There needs to be clarification as to the use of chemical wetting agents or dust suppressants for processed shale disposal. There appear to be contradictory statements as to what will be used and when.

(iii) Need a discussion of the sulfur species present other than H_2S and SO_2 and the implications of these compounds for the chosen sulfur control technology. What species and amounts may be present in the low-Btu gas and high-Btu gas?

c. Resolution of Issues

(i) The lessees state in response number 8 of the October 20, 1981, supplemental material that they plan to recover by-product vapors wherever practical according to established industry practice. There may be times such as startup, shut-down, maintenance, or emergency upset conditions where it will be necessary to dispose of at least a portion of the "vapors" in flares. A general design basis for the plant's flare headers was submitted. The lessee will send the OSO more detailed design rationale for the flare systems once they are designed.

(ii) The lessees have committed to a construction and operation which will minimize the generation of dust. They feel there is no conflict between the control procedures specified in Sections 7.10.4.4 and 3.10.3.3. Sections 4.2.3.1 and 4.2.3.2 show the actual plans for protecting the environment through dust control procedures. Water will be the primary means of limiting dust but chemical wetting agents will be used where deemed necessary. The OSO will watch closely and review all lessees' plans for the use of water and/or suppressants to control dust to help evaluate the effectiveness of water-only treatment. The OSO will recommend that a special study with dust suppressants be done on the Phase I processed shale pile research plot.

(iii) The lessees provided information on other sulfur species in their response to question 6 in the December 21, 1981, supplemental material. The lessees will review the gas treating requirements for the Superior and Union retort off-gas. The lessees will present their findings to the OSO and the resultant gas treating design prior to surface treating facility construction.

d. Recommendation

It is recommended that Section 4.2 of the DDP be approved with reference in the approval letter for submittal of all test results and studies performed on the various retort off-gases and that a dust suppressant study be done in Phase I on the processed shale pile research plot.

12. Section 4.3, Solid Waste Disposal Plan

a. Basic Plan

Several types and quantities of solid waste, other than excavated material and processed shale, will be processed during the construction and operation phases of the project. Solid wastes to be disposed in an approved landfill site are estimated to total 3.8 TPD during the construction, mining, and operation of Phase I. An estimated 21.9 TPD of raw shale dust will be handled during Phase I. During mining, the raw shale dust will be wetted and trucked to mined-out panels and during Phase I operation will be moistened and conveyed to the processed shale disposal site. The elemental sulfur from the Claus unit (29 TPD [dry]) will be placed in a separate storage pile for later recovery.

The procedures for handling waste from construction and operation were given for all three phases. The solid waste disposal plan is intended to fully comply with all federal and state regulations.

b. Issues

(i) There was a concern that degradable solid waste material placed in the processed shale disposal pile could lead to instability of the pile.

c. Resolution of Issues

(i) The lessees stated in their December 21, 1981, supplemental material (question 21) that a separate landfill will be used for those wastes such as general rubbish and construction materials which cannot be admixed with the processed shale.

d. Recommendation

It is recommended that Section 4.3 of the DDP be approved.

13. Section 4.4, Water Pollution Control

a. Basic Plan

All operation activities of the project will be planned to result in zero wastewater discharge. All waste streams and contaminated runoff from the process area will be diverted to catchment basins. The wastewater sources and amounts are given in Table 4.4-1. Precautions were explained for areas such as storage tanks, transfer and fueling operations, and facility drainage.

b. Issues

No major concerns have been identified in this section of the review.

c. Resolution of Issues

None required.

d. Recommendation

It is recommended that Section 4.4 of the DDP be approved.

14. Section 4.5, Water Drainage and Erosion Control

a. Basic Plan

A listing of the acreage disturbed by the various construction and operation activities is given in Table 4.5-1. Surface runoff and erosion control will be required for all of these areas and their contributing subdrainages. The controls discussed were designed to prevent contamination of the natural surface and groundwater systems, limit erosion, and maximize the use of drainage waters for vegetation and project use.

The holding ponds will be designed to be impervious. A summary of the drainage control features is given in Table 4.5-2 and shown on Figure 4.5-1 of the DDP.

The Phase I dam downstream from the processed shale pile will be built during the construction of the Phase I facility. It will be large enough to contain the runoff of a 100-year storm from a drainage area of 200 acres. The dam will be abandoned as the project enters Phase II and will eventually be covered with processed shale.

b. Issues

(i) There should be a monitoring well or wells at all ponds and impoundments.

c. Resolution of Issues

(i) In the approval of any hydrological monitoring plan, the need for monitoring wells will be considered and the number and location of wells will be agreed upon by the lessees and the OSO.

d. Recommendation

It is recommended that Section 4.5 of the DDP be approved and that the need for monitoring wells at all ponds and catchments be reviewed by both lessees and OSO prior to approval of any hydrological monitoring program.

15. Section 4.6, Disturbed Area Rehabilitation and Revegetation

a. Basic Plan

The lessees plan to rehabilitate the disturbed sites and the processed shale disposal pile by techniques based on studies done through the Institute for Land Rehabilitation at Utah State University. Studies were done on five disturbed sites on tracts U-a and U-b, a 15-acre site in Section 6 north of the White River, and a processed shale disposal pile at Anvil Points in Colorado. The objective of this continuing research program is to develop an innovative cost-effective land rehabilitation technology suitable for the low rainfall environment of tracts U-a and U-b that will make optimum use of rainfall, topsoil, and plant resources of the site.

Approximately 500 acres on tracts U-a and U-b will be disturbed during peak construction and operation periods. Roads, permanent structures, reservoirs, and buffer areas will cover approximately 200 acres. Rehabilitation will be done on the approximately 300 acres remaining.

The steps in rehabilitation of disturbed areas and the revegetation of processed shale were discussed.

b. Issues

(i) There is a concern as to the viability of the proposed revegetation plan. Early in Phase I a processed shale demonstration pile should be built and the preferred revegetation method and one alternative monitored.

(ii) Bonding requirements per Section 9 of the oil shale lease need to be established and defined in the approval letter.

c. Resolution of Issues

(i) The need for a processed shale research plot was identified in the review of Section 3 of the DDP. This issue was resolved by the lessees committing to the submittal of a detailed design of the Phase I processed shale disposal plot for OSO approval.

(ii) Each of the tracts have a \$20K compliance bond and a \$20K exploration operation bond. Based on the proposed activities in the DDP, a total of 470 acres will be disturbed in Phase I. The Oil Shale Office prepared a breakdown of bonding costs based on the total area of disturbance and sent it to BLM, Vernal, Utah, on December 1, 1981, for their review. On December 11, 1981, the BLM in Vernal concurred with the OSO-recommended reclamation bonding of \$1,000,000 on the White River Shale Project for the first three years of Phase I.

d. Recommendation

It is recommended that Section 4.6 of the DDP be approved with a requirement for a bond in the amount of \$1 million for the first three years of Phase I.

16. Section 4.7, Fish and Wildlife Management Plan

a. Basic Plan

The plan identifies the habitat losses that will occur and the mitigation efforts needed either to replace or improve alternative habitat for selected species. Alternative habitat will be made available to mobile displaced species from the disturbed areas by means of habitat enhancement. There will be 7,400 acres of undisturbed land on tracts U-a and U-b. The rationale for selecting alternative habitat from the undisturbed land is given. The enhancement techniques will be implemented on the tracts and on appropriate adjacent areas in cooperation with the concerned Federal and state agencies.

b. Issues

(i) There were some concerns as to the viability of the Fish and Wildlife Management Plan.

(ii) There was a concern that grazing impacts will be mitigated primarily by adjusting the grazing systems, changing season of use and by moving the use to other areas. There was no discussion or analysis of the feasibility or practicality of implementing these measures.

c. Resolution of Issues

(i) The Lease Environmental Stipulations require submission of a Fish and Wildlife Management Plan prior to initiating commercial production. There is time for all interested parties to coordinate with the lessees on the actual procedure to be implemented. In this type of environment the simplest habitat enhancement plan is to make additional water available - this the lessees will do.

(ii) Manipulating the grazing system is an approach which could be used for mitigation. The specific projects and methods will be cooperatively arrived at by all agencies involved.

d. Recommendation

It is recommended that Section 4.7 of the DDP be approved with reference in the approval letter that the final wildlife habitat enhancement program will be agreed upon by all agencies involved.

17. Section 4.8, Protection of Historic, Prehistoric, and
Paleontological Resources

a. Basic Plan

A prehistoric/cultural resource inventory was given in DDP Table 4.8-1. No historic sites of significance have been found on the lease tracts. The lessees will comply with all federal, state, and local regulations pertaining to the protection of the sites described.

b. Issues

No major concerns have been identified in this section of the review.

c. Resolution of Issues

None required.

d. Recommendation

It is recommended that Section 4.8 of the DDP be approved.

18. Section 4.9, Aesthetic Value Considerations

a. Basic Plan

Aesthetic considerations will be made in the development of the tracts. The following areas were discussed to mitigate potential adverse aesthetic impacts to the project area: natural contours, minimal disturbed land area, revegetated processed shale pile, visibility of plant facilities, color of plant facilities, restricted transportation, and utility lines.

b. Issues

No major concerns have been identified in this section of the review.

c. Resolution of Issues

None required.

d. Recommendation

It is recommended that Section 4.9 of the DDP be approved.

19. Section 4.10, Fire Prevention and Control

a. Basic Plan

The fire prevention and control plan was described in Section 3.13.5. The major features include fire station and trucks, automatic sprinkler and detection systems, standpipes, hoses, fire extinguishers, emergency safeguards, and fire-fighting water supplies.

b. Issues

No major concerns have been identified in this section of the review.

c. Resolution of Issues

None required.

d. Recommendation

It is recommended that Section 4.10 of the DDP be approved.

20. Section 4.11, Oil and Hazardous Materials Spill Control Contingency Plan

a. Basic Plan

This plan describes the basic elements necessary for such a plan. An on-site inventory will be made to identify the source, quantity, location, chemical characteristics, and potential hazards of all materials and wastes.

A spill control supervisor will be designated, trained, and assigned the responsibility of all spill control and cleanup activities. A spill control team will be organized and fully trained.

b. Issues

(i) The plan contains only a general discussion as to what will be done. The lessees need to provide to the Deputy Minerals Manager-Oil Shale a detailed Spill Prevention Control and Contingency Plan and must consider P.L. 96-510 in its preparation. This plan should be provided prior to operations.

c. Resolution of Issues

(i) The lessees committed to submission of a detailed Spill Prevention Control and Countermeasure Plan (SPCC) for each phase of the projected development in their response to question 32 of the December 21, 1981, supplemental material. The construction SPCC plan will be available for review during the first quarter of 1982.

d. Recommendation

With the lessees' commitment to submit SPCC plans, it is recommended that Section 4.11 of the DDP be approved.

21. Section 4.12, Prevention of Hazards to Public Health and Safety

a. Basic Plan

The lessees have committed to conduct all operations in a safe and responsible manner. The public health and safety measures are summarized in Table 4.12-1. The applicable environmental regulations were cited. Both MSHA and OSHA regulations will be applicable.

b. Issues

No major concerns have been identified in this section of the review.

c. Resolution of Issues

None required.

d. Recommendation

It is recommended that Section 4.12 of the DDP be approved.

22. Section 4.13, Hazardous Waste Management Plan

a. Basic Plan

All handling and disposal of hazardous waste will be in accordance with the Resource Conservation and Recovery Act. A hazardous waste inventory is presented in Table 4.13-1. The hazardous waste landfill design is shown in Figures 4.13-1 through 4.13-3. An impermeable liner will be used to control leachate. The maximum estimated quantities of hazardous waste are 15,000 ft³/yr in Phase I, 61,000 ft³/yr in Phase II, and 112,000 ft³/yr in Phase III. Consideration will be given to recycling the spent catalysts.

b. Issues

No major concerns have been identified in this section of the review.

c. Resolution of Issues

None required.

d. Recommendation

It is recommended that Section 4.13 of the DDP be approved.

23. Section 5.0, Environmental Effects of the Proposed Action
After Mitigation

a. Basic Plan

The potential project impacts on water, air, biology, soils and geology, historic and scientific, and aesthetic resources are discussed.

The applicable national air quality standards and PSD increments are not expected to be exceeded for Phases I, II, or III operations. The visibility impacts of Phase III at the Dinosaur National Monument, Flat Tops, and Arches are expected to be insignificant. No adverse impacts to aesthetic resources are anticipated.

The lessees concluded that the overall effects of operations on groundwater hydrology of the tracts will be negligible. Because they plan zero discharge, the only impacts to surface water would result from possible spills, leaks, or excessive storm flows. The terrestrial species most affected will include mule deer, avifauna, small mammals, and domestic livestock. The most significant effect will result from loss of habitat. There will be little impact on historic, prehistoric, and paleontological resources.

b. Issues

(i) Noise impact Section 5.2.8 was in the draft DDP but was not included in the final DDP.

(ii) There is a concern that the golden eagle nest in Southam Canyon may be impacted or jeopardized by the disposal of processed shale. It is possible some raptor nesting losses have already occurred (pages 5-63 and 2-166).

(iii) USGS Environmental Analysis Interim Procedures (October 2, 1979) require the consideration of Executive Order 11988 (flood plains), Executive Order 11990 (wetlands), and the Endangered Species Act.

c. Resolution of Issues

(i) During publication of the final DDP, Section 5.2.8 was inadvertently omitted. This section is provided as Attachment No. 4 to the lessees' October 22, 1981, supplemental material.

(ii) A tract inspection was conducted by BLM, OSO, USF&WS, and the lessees on November 5, 1981. The USF&WS was to evaluate their findings and submit a report to the OSO. On January 15, 1982, they issued a memo which recommended stipulations for Phase I activities to minimize the impacts to the golden eagle nest located in Southam Canyon. These stipulations will be effective during Phase I construction and operation of the WRSP.

(iii) It has been determined by the OSO that the proposed project is not located within a flood plain as defined by Executive Order 11988 and that the only wetland as defined by Executive Order 11990 is located along Evacuation Creek on tract U-b to the east of the proposed facilities. An opportunity was provided to the public to review the proposed plans as they may affect flood plains and wetlands, as required by Executive Orders 11988 and 11990. No adverse comments were received regarding impacts to flood plains or wetlands. Documentation may be found in the Evaluation Document prepared by the OSO staff.

d. Recommendation

It is recommended that Section 5 of the DDP be approved with reference in the approval letter to Phase I stipulations pertaining to the Southam Canyon golden eagle nest.

24. Section 6, Monitoring Program

a. Basic Plan

Section 6 of the DDP presents a summary of the environmental monitoring program for the WRSP. The monitoring program was developed by listing the expected primary impacts of the oil shale development on the environment, considering the OSO guidelines for development monitoring programs, and describing the general rationale for and discussion of each monitoring area. The areas covered in the monitoring program are air, water, solid waste, noise, biota, and subsidence. These are discussed in Sections 6.2 through 6.7. The monitoring program is submitted as part of the DDP in response to the requirements of the oil shale lease. Section 1(c) of the oil shale lease environmental stipulations requires the lessee to compile baseline data and conduct a monitoring program before, during, and subsequent to development operations. Data management and evaluation, auditing, quality assurance procedures, and the monitoring manual are discussed. The current monitoring program has been done under an approved work plan for the lease suspension period November 1, 1976, through October 31, 1977. The preliminary injunction became effective May 31, 1977, and as a result the OSO could not approve any actions to be conducted by the lessees. The lessees, however, continued the effort of monitoring as described in the December 1976 Work Plan.

b. Issues

(i) The monitoring program was considered to be too general. However, the monitoring manual discussed in Section 6.1.5 should present the detail necessary to evaluate the potential for success in measuring predicted project impacts. The concerns raised were to the detail expected in the monitoring manual and its submittal date to the OSO.

(ii) There is a need in the data management area for the latitude/longitude for all sites, coordinated tape formats, and submission of all data tapes to OSO.

(iii) There were specific concerns in each major area of monitoring. These will be evaluated during the review of the monitoring manual.

c. Resolution of Issues

(i) The lessees, in their response to question 4 of the December 21, 1981, supplemental material, committed to submit to the OSO a final draft monitoring manual prior to March 1, 1982. The manual will include much more detail on the rationale of parameters and monitoring site selection, sampling methods, data management and analysis, and the contingency plans when significant changes from baseline conditions are detected.

(ii) The specific information needed for data management will be resolved by requesting that it be made available through the approval of the monitoring manual.

(iii) All concerns raised with regard to environmental monitoring will be evaluated and resolved in the approval of the monitoring manual.

d. Recommendation

It is recommended that Section 6 of the DDP be approved with reference in the approval letter that a detailed monitoring manual be submitted prior to March 1, 1982, for OSO approval.

25. Section 7, Alternatives and Selection Rationale

a. Basic Plan

Section 7 discusses the alternatives considered in the studies and evaluations done on the White River Shale Project. In some cases the alternative comparisons were made without the aid of detailed data and analysis that will only be available after yet-to-be-done detailed engineering design. The selection criteria are presented in Section 7.2 and Section 7.3 contains the selection rationale. The remaining sections contain the alternatives for all aspects of the WRSP.

b. Issues

This section was considered to be accurate and complete. No major concerns have been identified in this section of the review.

c. Resolution of Issues

None required. The lessees will be reminded that should any of the selected and approved methods or plans not be successful then one of the detailed alternatives must be submitted to the OSO for approval.

26. Socioeconomics per Gibbs and Hill Study

The federal oil shale lease does not require a socioeconomic study or plan by the lessees. However, the lessees recognize the importance and sensitivity of socioeconomics and submitted a community and infrastructure support study prepared by Gibbs and Hill, Inc., dated August 1981. This document, prepared as the supplement to the DDP, provides a description of the socioeconomic environment of the area to be affected by WRSP and presents an assessment of the project's impacts on the environment.

The socioeconomic document describes in detail such areas as economic environment, existing community infrastructure and resources, public budgets and tax base, socio-cultural environment, WRSP construction camp, and potential community impacts.

b. Issues

(i) Numerous comments were made concerning the community and infrastructure support study. Many of the comments were complimentary for a job well done. However, some were critical of the study's lack of detail, geographical area covered, and overall adequacy. Comments in favor and against the study were made by local and state governments and the general public.

c. Resolution of Issues

(i) The study was not required under the terms of the lease and is, therefore, not an approvable document. All comments have been reviewed and no additional information was deemed necessary. The degree and nature of the socioeconomic impacts make it imperative that a high level of communication exist between the lessees and the affected local and state governments. The Deputy Minerals Manager-Oil Shale will strongly encourage this communication. The lessees in the cover letter of their December 21, 1981, supplemental material committed to a direct employee monitoring program. It will consist of maintaining up-to-date records on the number of employees, location of residence, length of residence, type of residence, type of employment, family status, and length of employment on the project. This information will be made available to the OSO and others on a regular basis.

d. Recommendation

No approval of the socioeconomic supplement is required of the Deputy Minerals Manager-Oil Shale. References will be made in the approval letter to the leasees' commitment to a socioeconomic monitoring program. The leasees will work with the OSO in developing such a program and will consider the following elements:

(i) Monitor the impacts of the construction work camp on communities in both Utah and Colorado

(ii) Develop specific plans to mitigate these impacts identified in the supplemental study. This mitigation plan will be developed in consultation with the affected local and state governments.

(iii) Operational rules and requirements for the proposed construction camp will be developed in consultation with the affected local governments in Utah and Colorado.

III Recommendations

A. Rationale

The decision to approve the White River Shale Project's Detailed Development Plan (DDP) was based on a detailed review of the plan, supplemental material, and public comments. Issues and concerns have been resolved by supplemental DDP material and the lessees' commitment to submit specific detailed plans or will be resolved by specific conditions of approval.

The review and analysis involved consideration of the Oil Shale Lease and Environmental Stipulations, Federal and state standards, environmental data, and the viability of the development plans. Comments from the public and Federal, state and local governments were received and evaluated. Furthermore, the Oil Shale Environmental Advisory Panel, consisting of representatives from Federal, state, and local government agencies, private industry, and special interest groups, reviewed and advised the Oil Shale Office on the environmental aspects of the plan. The Decision Document was based on a detailed and thorough analysis of the DDP through the participation of all Oil Shale Office staff specialists.

The USGS Environmental Analysis Interim Procedures (October 2, 1979) require the consideration of Executive Order 11988 (flood plains), Executive Order 11990 (wetlands), and the Endangered Species Act. The OSO determined that the proposed project is not located within a flood plain and the only wetland is located to the east of the proposed facilities. The biological assessment concluded and the U.S. Fish & Wildlife Service concurred that the oil shale development on tracts U-a and U-b should not jeopardize the continued existence of any federally-listed threatened or endangered species. The assessment evaluated terrestrial species for all three phases of development and the aquatic species for only Phase I.

Both tract areas have been surveyed and cleared regarding significant historical and cultural values.

The major oil shale development issues as presented in the 1973 Final Environmental Impact Statement (EIS) for the Prototype Oil Shale Leasing Program were compared with the White River Shale Project's DDP. The comparison was made to determine if any significant environmental impacts that were not identified and described in the FEIS can be expected to result from the implementation of the DDP. Furthermore, the comparison was made to determine if the degree of impacts to be expected from the implementation of the plan would be consistent with the degree of impacts that the FEIS predicted might result from oil shale development on tracts U-a and U-b. All major areas of the DDP were compared with the 1973 Final EIS. Based on the comparison and comments from the public, the OSO concludes that no significant impacts can be expected to result from the implementation of the DDP that were not identified and described in the Final EIS. The degree of impacts to be expected from development per the

DDP is consistent with the degree of impacts that the Final EIS predicted might result. It is concluded that an additional EIS is not required because it would not add to the knowledge already available to the supervisory agencies and the public.

During the DDP public hearings in Salt Lake City, Utah, on October 28, 1981, Governor Scott Matheson stated "...We further believe that sufficient grounds exist for the USGS-DCM-Oil Shale to provide explicit approval for the DDP at this time." He further stated, "The state is committed to the Federal Prototype Program for tracts U-a and U-b as the means of investigating the various environmental and technological programs associated with the development of oil shale."

The local county is in favor of oil shale development which was expressed by Mr. Merrill Mecham, Commissioner of Uintah County, Vernal, Utah, when he stated at the Vernal, Utah, October 21, 1981, public hearings, "The DDP describes the project in sufficient detail to assist the local governments in planning mitigation procedures to minimize the effects of rapid growth in the area socially, environmentally, and economically." In conclusion he stated "...Uintah County supports the approval of the DDP for the White River Shale Project and the issuing of the construction permits at the earliest possible date."

B. Recommendations

The Oil Shale Office has concluded that the White River Shale Project's Detailed Development Plan submitted September 1, 1981, and all supplemental material referenced in this Decision Document constitute an acceptable and diligent Detailed Development Plan under Section 10(a) of the Oil Shale Lease, provided terms of the conditions of approval listed below are fully implemented. These conditions are a composite of those recommended in Part II of this Decision Document.

Approval grants the lessees the right to proceed with development of the leased oil shale deposits on tracts U-a and U-b and with the environmental control plans as described in the DDP in accordance with terms of the Lease and Lease Environmental Stipulations. Approval does not convey any rights to public lands off the lease tracts.

Granting approval will in no way waiver the obligation of the lessees to fully comply with all terms of the Lease and Environmental Stipulations which shall be strictly enforced by this office under penalty of termination of operations, or with the requirement incumbent upon the lessees to obtain and comply with all applicable Federal, state, and local permits, laws, and regulations.

Development may commence at such time as the terms of the conditions of approval are acknowledged and a bond in the amount of \$1 million is filed with the Bureau of Land Management pursuant to Section 9(b)(1) of the Oil Shale Lease. All development and environmental control work on the tracts must be done in accordance with the approved plan. If it becomes

necessary to modify or change this plan, any such changes must be approved by the Deputy Minerals Manager-Oil Shale pursuant to Section 10(b) of the Oil Shale Lease.

With approval, notice is given that a copy of the approved plan and conditions is available for public inspection at the Oil Shale Office and at the administrative office of the lessees. Furthermore, reports on the environmental baseline data, interim monitoring, forthcoming development, production, and environmental monitoring will also be available at the Oil Shale Office for public inspection.

The Detailed Development Plan will be considered approved as conditioned upon the acceptance by the lessees of the following terms:

1. Prior to commencing any operation under Phase I of the Detailed Development Plan (DDP), the lessees shall submit final design plans, as requested by the Deputy Minerals Manager-Oil Shale for his review as to adherence to the DDP, to the terms of the Oil Shale Lease, and to the requirements of 30 CFR Part 231 and 43 CFR Part 23.
2. Prior to commencing construction of commercial phase facilities, the lessees shall submit plans, as requested by the Deputy Minerals Manager-Oil Shale for his review and approval as to adherence to the plan of action contained in the DDP, to the terms of the Oil Shale Lease and to the requirements of 30 CFR Part 231 and 43 CFR Part 23.
3. The lessees shall submit detailed campsite construction plans to the Deputy Minerals Manager-Oil Shale for his review and approval prior to any groundbreaking for the campsite.
4. The lessees shall submit a detailed decommissioning and abandonment plan to the Deputy Minerals Manager-Oil Shale for his review and approval prior to lease relinquishment.

Form 1279-3
(June 1984)

BORROWER

TN 859 .UB2 W437 1982

Decision document

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